

## Listing of Claims

10/526513  
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1. (Original) A method of optimizing a two-dimensional image of a body volume which contains an object, in which method
  - a) a three-dimensional representation of feasible locations of the object within the body volume is acquired;
  - b) the current position of the object is determined and associated with the three-dimensional representation;
  - c) imaging parameters which are optimum in respect of the position of the object are determined by means of the three-dimensional representation, and
  - d) a two-dimensional image of the body volume is generated by means of said optimum imaging parameters.
2. (Currently Amended) A method as claimed in claim 1, ~~characterized in that~~ wherein the two-dimensional image is a projection of the body volume which has been generated by means of X-rays.
3. (Original) An imaging system for forming a two-dimensional image of a body volume which contains an object, which system comprises a data processing unit with a memory which stores a three-dimensional representation of feasible locations of the object within the body volume, the data processing unit being arranged
  - a) to determine imaging parameters which are optimum in respect of the current position of the object by means of the three-dimensional representation;
  - b) to control the imaging system in such a manner that it generates a two-dimensional image with said imaging parameters.
4. (Currently Amended) An imaging system as claimed in claim 3, ~~characterized in that~~ wherein it includes an X-ray apparatus with an X-ray source and a detector which are attached to a movable C-arm.
5. (Currently Amended) An imaging system as claimed in claim 4, ~~characterized in that~~ wherein the X-ray apparatus includes adjustable diaphragms whose adjustment forms part of the imaging parameters optimized by the data processing unit.

6. (Currently Amended) An imaging system as claimed in claim 3, ~~characterized in that wherein~~ the data processing unit is coupled to signal leads, notably for an ECG, of a respiration sensor and/or of a localizing device for the object.

7. (Currently Amended) An imaging system as claimed in claim 3, ~~characterized in that wherein~~ it is arranged to determine the current position of the object from a two-dimensional image.

8. (Currently Amended) An imaging system as claimed in claim 3, ~~characterized in that wherein~~ the imaging parameters define a sectional plane, a projection direction, the position of a radiation source, the position of an imaging radiation detector, the shape of an imaging window, the position of radiation-attenuating diaphragm elements, variances in the radiation field across an irradiated surface, a radiation quality, a radiation intensity, the current and/or the voltage of a radiation source and/or an exposure time.

9. (Currently Amended) An imaging system as claimed in claim 3, ~~characterized in that wherein~~ the feasible locations of the object are vessels within a biological body volume, and that the data processing unit is arranged to define the optimum imaging parameters in such a manner that the segment of the vascular tree in which the object is situated is projected essentially in a planar fashion in the two-dimensional image.

10. (Currently Amended) An imaging system as claimed in claim 3, ~~characterized in that wherein~~ it includes a device for the formation of images and is arranged to display the two-dimensional image in superposed form together with an image formed from the three-dimensional representation with completely the same or partly the same imaging parameters, the image formed from the three-dimensional representation preferably reproducing an area which is larger than that reproduced by the two-dimensional image.